

**FACT SHEET FOR STATE WASTE DISCHARGE PERMIT NO. ST 6180**

**J.M. Martinac Shipbuilding Corporation**

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This fact sheet is the companion document to the draft State Waste Discharge Permit No. 6180. The Department of Ecology (Department) is proposing to issue this permit, which will allow the discharge of stormwater into the groundwater subject to certain restrictions.

This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the stormwater, and the regulatory and technical basis for those decisions.

GENERAL INFORMATION		
Applicant:	<b>J.M. Martinac Shipbuilding Corporation</b>	
Facility Name and Address:	J.M. Martinac Shipbuilding Corporation 401 East 15th Street Tacoma, Washington 98421	
Type of Facility:	Ship Construction and Repair	
Type of Treatment:	Collection and Infiltration into the Groundwater	
Discharge Location:	Ground water Latitude: 47° 15' 00" N Longitude: 122° 25' 27" W	Outfall 001: Infiltration basin.
Contact at Facility:	Mr. F. William Lang, Personnel/Safety Director 401 East 15th Street Tacoma, Washington 98421 (253) 572-4005	
Permit Writer:	Mohsen Kourehdar, P.E., SWRO, TCP	

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## **INTRODUCTION**

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6180. The Department of Ecology (Department) is proposing to issue this permit, which will allow discharge of storm water into the ground water. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the water, and the regulatory and technical bases for those decisions.

Washington State law [Revised Code of Washington (RCW) 90.48.080 and 90.48.162] requires that a permit be issued before discharge of stormwater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits [Chapter 173-216 Washington Administrative Code (WAC)], and water quality criteria for groundwaters (Chapter 173-200 WAC). They also establish requirements which are to be included in the permit. This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the permittee and errors and omissions identified in these reviews have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. Changes to the permit and fact sheet will be addressed in Appendix C--Response to Comments.

## **BACKGROUND INFORMATION**

### **DESCRIPTION OF THE FACILITY**

#### **BACKGROUND**

Martinac has been constructing vessels at its present location on the east bank of Thea Foss Waterway since 1924. Predominant activities are the design and new construction of fishing vessels and tugs and the repair and retrofitting of existing vessels. Activities include welding, cutting, machining, sandblasting, painting, carpentry, pipefitting, and electrical wiring.

The Martinac facility covers approximately 6.2 acres. Their facilities include two covered marine launching ways which can each handle vessels up to 250 feet in length and 44 feet in width. Other areas of the facility include plate and fabrication areas, marine construction buildings, outfitting docks, grit blasting and paint spray areas, lumber and metal storage areas and warehouses. Martinac does not have a drydock or graving dock.

With the exception of steam cleaning there are no industrial processes at Martinac that generate wastewater. The shipyard infrequently disposes of bilge, ballast, or gray waters from vessels. Any such water is stored in a 500-gallon tank prior to being disposed of by a subcontractor.

Sanitary wastewater from the facility is discharged to the City of Tacoma sanitary sewer system.

Solid waste generated at the site includes sandblast grit. This material is currently transported off site for recycling at a cement plant. Scrap metal is recycled off site. Some solvents are redistilled on site; other solvents are stored in drums until transport off site by a solvent recycler. Waste paints are allowed to dry in buckets and are then disposed of as municipal waste.

## PERMIT STATUS

The previous permit issued to this facility was a National Pollutant Discharge Elimination System (NPDES) Permit No. WA-004028-2 for the discharge of stormwater to Thea Foss Waterway. The NPDES permit was issued on January 12, 1997. Because J.M. Martinac has converted its stormwater discharge to a groundwater infiltration system, this State Waste Discharge Permit is being drafted which will regulate this discharge. An application for a State Waste Discharge permit was submitted to the Department on May 17, 1999.

## SEPA COMPLIANCE

In the proposal to construct the infiltration basin, J.M. Martinac complied with the State Environmental Policy Act (SEPA) process. The construction activity on the shoreline is subject to the Pierce County Shoreline Permit. J.M. Martinac has complied with the SEPA and Pierce County's shoreline construction requirements.

## PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Stormwater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the State. To address the AKART requirements, the engineering report was developed by Kennedy/Jenks Consultant in conformance with the Stormwater Management Manual for the Puget Sound Basin (Ecology, 1992b).

Water quality-based limitations are based upon compliance with the Groundwater Quality Standards (Chapter 173-200 WAC). The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern in the discharge. Each of these types of limits is described in more detail below.

## TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment (AKART) of discharges to waters of the state (WAC 173-216-110). The following technology-based effluent limitations are necessary to satisfy the requirement for AKART in the discharge of stormwater at Martinac.

### **Process Wastewater:**

With the exception of steam cleaning, J.M. Martinac does not generate any process water from their operation.

### **Stormwater:**

The types of material that may cause stormwater contamination at the Martinac facility include: spent abrasive grit; paint overspray (including antifouling); scrap metals; welding rods; miscellaneous solid waste; etc. Because sandblasting is done in several areas and these areas have only partial containment, grit may be present throughout the yard and may cause stormwater contamination. The various types of motorized equipment used in the shipyard operations are also potential sources of oil/fuel to the stormwater collection and treatment system.

The entire Martinac site is paved and precipitation that collects as surface water is collected in three storm drains, followed by a 520-gallon oil-water separator, before it is pumped into the infiltration basin. The stormwater collection and treatment system construction was finished in July 1998 and no stormwater has been discharged directly into the Thea Foss Waterway since. The stormwater treatment system will serve an area of approximately 3.1 acres. Figure 1 in Appendix A shows the schematic flow diagram of the stormwater treatment system.

In addition to the stormwater treatment/collection system, Martinac implements Best Management Practices (BMPs) to minimize the contamination of stormwater runoff from their yard.

The stormwater conveyance system provides for containment and collection of the stormwater from 3.1 acres of the site resulting from the 24-hour, 2-year recurrence interval storm event. Any excess stormwater generated from storm events, will overflow the infiltration basin and will return in the catch basins. From the catch basins, stormwater goes through the oil-water separator, before infiltrating into the groundwater. The stormwater treatment system was designed based on an engineering report submitted on August, 1997 by Kennedy/Jenks Consultant.

The infiltration basin at Martinac is designed as a “water quality infiltration basin” according to the specifications identified in the Stormwater Management Manual for the Puget Sound Basin (Ecology, 1992b). More detailed descriptions of the stormwater collection/treatment system design can be found in the “Draft Engineering Report, August 1997 by Kennedy/Jenks Consultants”.

**Stormwater Characteristics Before Discharge into the Infiltration Basin**

<p><b>TABLE 2</b></p> <p><b>J.M. Martinac Shipbuilding Corporation</b></p> <p><b>MONITORING RESULTS SUMMARY</b></p>						
<b>Location/ Sampling Date</b>	<b>PH</b>	<b>TSS (mg/l)</b>	<b>Copper (ug/l)</b>	<b>Zinc (ug/l)</b>	<b>Oil &amp; Grease (mg/l)</b>	<b>Notes</b>
<b>Current Stormwater (from oil-water separator outlet, before infiltration into the groundwater)</b>						
October 8, 1998	7.0	5.0	70	920	0.80	Copper and Zinc are Total recoverable
November 23, 1998	6.77	4.3	11	330	0.70	Copper and Zinc are Total recoverable
December 2, 1998	7.0	1.0	28	1300	4.77	Copper and Zinc are Total recoverable
January 14, 1999	7.04	<0.50	8.0	490	1.2	Copper and Zinc are Total recoverable
January 1997	-	-	9.0 26 38	405 512 768	-	Copper and Zinc are Total recoverable
February 1997	-	-	27 41 46	246 534 566	-	Copper and Zinc are Total recoverable
March 1997	-	-	22 19 21	344 556 638	-	Copper and Zinc are Total recoverable
April 1997	-	-	39 71 102	426 726 1078	-	Copper and Zinc are Total recoverable
May 1997	-	-	315 169 12	2020 1420 730	-	Copper and Zinc are Total recoverable
June 1997	-	-	19 29 52	214 381 559	-	Copper and Zinc are Total recoverable
July 1997	-	-	13 29 24	173 243 337	-	Copper and Zinc are Total recoverable
September 1997	-	-	29 34 65	360 520 920	-	Copper and Zinc are Total recoverable
October 1997	-	-	1 10 6	250 380 510	-	Copper and Zinc are Total recoverable
November 1997	-	-	8 7 40	180 290 420	-	Copper and Zinc are Total recoverable
December 1997	-	-	11 20 20	130 220 270	-	Copper and Zinc are Total recoverable
January 1998	-	-	1 7 8	150 240 280	-	Copper and Zinc are Total recoverable

The technology-based limitations for copper and zinc in stormwater were calculated from the data taken from the stormwater runoff from the Martinac facility. The data is shown in Table 2. Table 3 shows the calculated performance based permit limits for copper and zinc and their comparison with the groundwater quality standards. Performance based limits for copper and zinc are projected calculated 95 percentile of the data in Table 2. The spreadsheet, which was used to calculate these limits, is in Appendix A. As shown in the spreadsheet, this calculation method takes into account variability of stormwater by assigning coefficient of variation for each data set for copper and zinc.

**TABLE 3: CALCULATED PERFORMANCE BASED PERMIT LIMITS AND COMPARISON WITH GROUNDWATER QUALITY CRITERIA.**

<b>Parameter</b>	<b>Performance Based, Calculated Permit Limits, ug/L</b>	<b>Groundwater Quality Criteria, ug/L</b>
Total Zinc	1332	5000
Total Copper	90	1000

Also the permit limits may change depending on semi-annual groundwater monitoring results. Results from the up-gradient and down-gradient wells will provide information concerning the background concentration of copper, zinc, and oil & grease and the impact of stormwater discharge into the groundwater, respectively. This information along with the data from the treatment system may lead to further refinement of the permit limits in next permit cycle.

The permit has a daily maximum daily limit of 10.0 mg/l for oil and grease which is a technology-based limit. These standards are based on the use of gravity oil/water separators and satisfy the federal requirement for the best conventional pollutant control technology (BCT) and the state requirement for AKART.

#### GROUNDWATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's groundwaters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Groundwater Quality Standards. In order for the Department to allow discharge into the groundwater, the background concentration of groundwater should be determined prior to start of the discharge. Martinac has installed three ground water monitoring wells to determine the background ground water concentration and study the impact of stormwater discharge into the ground water. The monitoring wells depth are approximately 13 feet below ground surface and screened approximately from 5 to 13 feet. The screen slot size casing is 0.010 inches. Martinac has submitted the following groundwater data as shown in Table 4:

Table 4: Ground Water Data

Monitoring Well	Date	Copper, ug/l	Zinc, ug/l	Lead, ug/l
(MW-1) (cross gradient)	5/6/97	<25	25	<25
	5/6/97	39	24	15
	11/16/98	12	33	-
	11/30/98	20	32	-
	12/14/98	9	21	-
	12/28/98	19	58	-
(MW-2) (down-gradient well)	5/6/97	<25	<20	<4
	5/6/97	<25	20	<4
	11/16/98	10	36	-
	11/30/98	20	30	-
	12/14/98	7	8	-
	12/28/98	16	48	-
(MW-3) (upgradient well)	5/6/97	<25	<20	<4
	5/6/97	<25	<20	<4
	11/16/98	33	46	-
	11/30/98	13	33	-
	12/14/98	<2	9	-
	12/28/98	17	61	-
Ground Water Quality Standards	-	1000	5000	50

These monitoring wells will be monitored semi-annually for five years. At the end of five years, the background groundwater monitoring results will be evaluated to determine the background concentration for parameters of concern in this permit and down-gradient groundwater monitoring results will be used to evaluate the impact of infiltration of stormwater into the groundwater.

#### REDUCTION OF POLLUTANTS DISCHARGE INTO SURFACE AND GROUNDWATER

The stormwater collection and treatment system was operational in July 1998. Table 5 shows the approximate yearly amount of copper and zinc that was released into the environment (i.e., ground water and surface) before and after stormwater collection/treatment system installation. As it is shown the percent reduction of copper and zinc that is released into the environment estimated to be 96 % and 80 %, respectively.

**TABLE 5: YEARLY PERCENT REDUCTION OF POLLUTANTS INTO SURFACE AND GROUNDWATER SINCE TO INSTALLATION OF STORMWATER COLLECTION/TREATMENT SYSTEM.**

Parameter	LB/Year, before stormwater collection/treatment system installation	LB/Year, After Stormwater collection/ treatment system installation	Yearly Percent Reduction, %
Copper	22.0	0.80	96
Zinc	105.0	21.0	80

Before the stormwater collection and treatment construction, all the stormwater from the shipyard were directly washed into the Thea Foss Waterway through stormdrains

**A. Best Management Practices Requirements**

The requirement for implementation of BMPs under this permit consists of the adaptation of the general categories of BMPs applicable to the shipyard industry as a whole into facility-specific BMPs based on the particular activities conducted at this shipyard. The facility-specific BMPs shall be contained in the BMP plan submitted pursuant to Special Condition S9.

**i. BMP Requirements**

BMPs were developed to achieve pollution control through careful management of the activities on site with the potential to cause pollution. The BMPs specified in this permit are procedures to prevent and minimize the potential for the release of pollutants to the receiving water. Current feasible BMPs generally consist of prompt clean up of pollutants, segregation of pollutants, and temporary barriers of plywood sheeting, tarpaulins, and plastic sheeting to prevent or minimize the transport of paint, paint overspray, abrasive blasting grit, dust, and detritus to waters of the state.

**ii. BMP Plan**

The Permittee shall submit a BMP plan to the Department for review and approval within 90 days after effective date of this permit. This plan shall contain facility-specific provisions for implementing the BMPs specified in Special Condition S9 of the permit and shall contain a level of detail such that site workers may implement the required practices by referring to the plan. The BMP plan shall be updated annually.

**MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that groundwater criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

## **STORMWATER MONITORING MONITORING**

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

## **OTHER PERMIT CONDITIONS**

### **REPORTING AND RECORDKEEPING**

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

### **GENERAL CONDITIONS**

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to groundwater permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

## **RECOMMENDATION FOR PERMIT ISSUANCE**

This proposed permit meets all statutory requirements for authorizing a stormwater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued and be effective for five years from date of issuance. This expiration date is consistent with the basin-planning schedule for Pierce County.

## **REFERENCES FOR TEXT AND APPENDICES**

Kennedy/Jenks Consultant, 1997 "Draft Engineering Report" Containment" for J.M. Martinac Shipbuilding.

Kennedy/Jenks Consultant, 1996 "Preliminary Infiltration Assessment Results" for J.M. Martinac Shipbuilding.

Discharge Monitoring Reports

Washington State Department of Ecology, 1992a. Permit Writer's Manual.

Washington State Department of Ecology, 1992b. Stormwater Management Manual for the Puget Sound Basin.

Washington State Department of Ecology, 1996. Implementation Guidance for the Groundwater Quality Standards.

## **APPENDICES**

### **APPENDIX A**

#### **PUBLIC INVOLVEMENT INFORMATION**

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department published a Public Notice of Draft (PNOD) on \_\_\_\_\_ to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator  
Department of Ecology  
Southwest Regional Office Regional Office  
PO Box 47775  
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6256, or by writing to the address listed above.

Mohsen Kourehdar, P.E, wrote this permit.

TECHNOLOGY/PERFORMANCE-BASED  
PERMIT LIMIT CALCULATIONS WORKSHEET

PERMIT LIMIT CALCULATIONS BASED ON A LOGNORMAL DISTRIBUTION, OVER 20  
INDIVIDUAL DATA POINTS, AND A PRESELECTED SAMPLING FREQUENCY.

PERMIT LIMITS CALCULATION FOR COPPER AND ZINC FOR J.M. MARTINAC

	Population standard deviation (SD)	Long term average (LTA)	Average monthly limit, ug/l (AML)	Maximum daily limit, ug/l (MDL)	Coefficient of variation (CV)	AML probability basis (AML PB)	MDL probability basis (MDL PB)	Number of samples per month (#/month)
Copper	28	38	90.3743	137.825	0.73684	0.95	0.99	1
Zinc	438	525	1332.47	2288.7	0.83429	0.95	0.99	1

### SAMPLE CALCULATION

#### CALCULATING TOTAL YEARLY REDUCTION OF POLLUTANT DISCHARGED INTO THE SURFACE AND GROUNDWATER

Total yearly rainfall in Tacoma = 40 inches

(A) Mean concentration of Copper before stormwater infiltration system installation = 800 ug/l = .8 mg/l

(B) Mean concentration of Copper after stormwater infiltration system installation = 29 ug/l = .029 mg/l

Total area of the yard = 3.1 acres = 133,964 ft<sup>2</sup>

Lb./year of Copper discharged into the surface and groundwater before stormwater collection/treatment system installation =

$$(133,964 \text{ ft}^2 \times ((40"/12') \text{ ft})) 7.481 \text{ gal./ft}^3 \times .80 \text{ mg/l} \times 8.33 \text{ lbs./gal.})/10^6 = \mathbf{22 \text{ lbs./year}}$$

Lb./year of Copper discharged into the surface and groundwater after stormwater /collection treatment system installation =

$$(133,964 \text{ ft}^2 \times ((40"/12') \text{ ft})) 7.481 \text{ gal./ft}^3 \times .0290 \text{ mg/l} \times 8.33 \text{ lbs./gal.})/10^6 = \mathbf{0.80 \text{ lbs./year}}$$

Amount of reduction in copper discharge into the surface and groundwater after stormwater collection/treatment system:

$$22 - 0.80 = \mathbf{21.2 \text{ LB/Year}}$$

The amount of reduction in zinc discharge was calculated with the similar method.

## **APPENDIX B--GLOSSARY**

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**Bypass**--The intentional diversion of waste streams from any portion of the collection or treatment facility.

**Compliance Inspection**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Engineering Report**--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

**Maximum Daily Discharge Limitation**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Monthly Average** – The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Quantitation Level (QL)**-- A calculated value five times the MDL (method detection level).

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Water Quality-based Effluent Limit**--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.